

afe

Docket No.: 061352-0073

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer Number: 20277
	:	
Ichiro SATO, et al.	:	Confirmation Number: 2778
	:	
Application No.: 10/811,876	:	Group Art Unit: 1756
Patent No.: 6,896,940 B2	:	
	:	
Filed: March 30, 2004	:	Examiner: Shean Chiu WU
Issued: May 24, 2005	:	
	:	
For: LIQUID CRYSTAL SCREEN DISPLAY	:	

REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322

Mail Stop Box 4 / Certificate of Correction
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**Certificate
AUG 12 2005
of Correction**

Sir:

In reviewing the above-identified patent, a printing error was discovered therein requiring correction in order to conform the Official Record in the application.

The error noted is set forth on the attached copy of form PTO-1050 Rev. 2-93 in the manner required by the Commissioner's Notice.

Specifically, on the title page, in Item "(62) Related U.S. Application Data", the 371 reference in the text was omitted; the text should read --**Division of application No. 10/130,109, filed May 15, 2002, a 371 application of PCT/JP01/07473, filed on Aug. 30, 2001--**.

In addition, the list of "FOREIGN PATENT DOCUMENTS" contains a duplicate listing of "JP 4-359222 12/1992"; please delete the 4th listing "JP 04-359222 12/1992".

AUG 15 2005

10/811,876

Patent No. 6,896,940 B2

In Column 16, claims 2 and 3 (formerly claims 27 and 28, respectively), please change the formula "(t-Bu)hd 4NX" to -- (t-Bu)₄NX --. A copy of Applicants' Amendment filed December 7, 2004, showing the correct formula, is attached for your information and convenience.

The change requested herein occurred as a result of printing the Letters Patent and the Certificate should be issued without expense under Rule 322 of the Rules of Practice. Accordingly, Applicants request issuance of the Certificate of Correction.

Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Michael E. Fogarty
Registration No. 36,139

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 MEF:BD
Facsimile: 202.756.8087
Date: August 10, 2005

**Please recognize our Customer No. 20277
as our correspondence address.**

WDC99 1119429-1.061352.0073

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,896,940 B2
DATED : May 24, 2005
INVENTOR(S) : Ichiro SATO, et al.

It is certified that error appears in the above-identified patent and that said Letter Patent is hereby corrected as shown below:

Title Page:

Item "(62) **Related U.S. Application Data**", replace "Division of application No. 10/130,109, filed as application No. PCT/JP01/07473 on Aug. 30, 2001." with – Division of application No. 10/130,109, filed May 15, 2002, a 371 application of PCT/JP01/07473, filed Aug. 230, 2001." --;

Under "FOREIGN PATENT DOCUMENTS", delete the 4th-listed reference "JP 04-359222 12/1992";

IN THE CLAIMS,

Column 16, line 15, change "(t-Bu)hd **4NX**" to -- (t-Bu)₄**NX** --;
line 19, change "(t-Bu)hd **4NX**" to -- (t-Bu)₄**NX** --.

Docket No.: 61352-073



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Customer Number: 20277
Ichiro SATO, et al. : Confirmation Number: 2778
Application No.: 10/811,876 : Group Art Unit: 1756
Filed: March 30, 2004 : Examiner: Shean Chiu Wu

For: LIQUID CRYSTAL SCREEN DISPLAY
Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is an Amendment in the above-identified application.

- ☒ No additional fee is required.
☐ Applicant is entitled to small entity status under 37 CFR 1.27
☐ Also attached:

The fee has been calculated as shown below:

	NO. OF CLAIMS	HIGHEST PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	FEE
Total Claims	3	20	0	\$18.00 =	\$0.00
Independent Claims	1	3	0	\$88.00 =	\$0.00
Multiple claims newly presented					\$0.00
Fee for extension of time					\$0.00
					\$0.00
Total of Above Calculations					\$0.00

- ☐ Please charge my Deposit Account No. 500417 in the amount of \$0.00. An additional copy of this transmittal sheet is submitted herewith.
- ☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 500417, including any filing fees under 37 CFR 1.16 for presentation of extra claims and any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

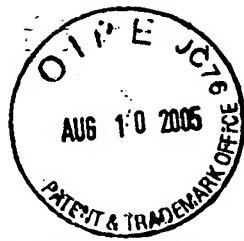
Ramyar M. Farid
Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 RMF:cac
Facsimile: 202.756.8087
Date: December 7, 2004

Please recognize our Customer No. 20277 as our
correspondence address.

AUG 15 2005

Docket No.: 61352-073



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer Number: 20277
Ichiro SATO, et al.	:	Confirmation Number: 2778
Application No.: 10/811,876	:	Group Art Unit: 1756
Filed: March 30, 2004	:	Examiner: Shean Chiu Wu
For: LIQUID CRYSTAL SCREEN DISPLAY	:	

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated September 7, 2004, having a three-month shortened statutory period for response set to expire on December 7, 2004, reconsideration of the above-identified application is respectfully requested in view of the following amendment and remarks.

AMENDMENT TO THE SPECIFICATION

Please amend the paragraph bridging pages 19 and 20 as follows:

After the formation of the insulating film 11, a contact hole is formed at a specified position within the region where the semiconductor layer of the substrate 10 is formed. An aluminum film and a titanium film are formed to cover the entire surface of the substrate 10 and this multiple layered film is processed to form the source signal lines 5 integral with the source electrode of the TFT 9 and the pixel electrodes 6 integral with the drain electrode of the TFT 9.

Please amend the only full paragraph on page 20 as follows:

In this way, the overcoat film 12, which is made from silicon nitride or the like and covers the surface of the substrate 10 having the signal lines and the electrodes thereon, is formed, and the apertures 13 are formed by selectively removing the overcoat film 12 at specified positions within the regions where the gate signal lines 4 are formed. At the same time, the overcoat film 12 formed on the peripheral edge of the substrate 10 is removed as necessary, to expose a connector terminal (not shown) that is placed for connection between the signal lines formed there and an external driving circuit. Thereafter, the alignment layer 16 made from polyimide or the like is formed on the surface of the substrate 10 in a specified manner and the array substrate having the apertures 13 (such as shown in Figure 1) at which part of the respective gate signal lines 4 is in contact with the alignment layer 16 is obtained.

Please amend the paragraph bridging pages 20 and 21 as follows:

Where the gate signal lines 4 are exposed by removing the overcoat film and the alignment layer with a laser such as described in Background Art, electrons also move from the gate signal lines 4 to the liquid crystal layer 18 so that liquid crystal molecules are ionized. However, the ionized liquid crystal molecules, in this case, are likely to be accumulated at the exposed portions of the gate signal lines 4, because the exposed portions of the gate signal lines 4 are small. The accumulation of the ionized liquid crystal molecules at the exposed portions of the gate signal lines 4 causes variations in ion concentration, which can be the cause of display unevenness. In the case of the present embodiment, electrons move from the gate signal lines 4 to the liquid crystal layer 18 through an extremely thin alignment layer [[13*]] 16, the gate signal lines 4 being supplied with a negative voltage at all times except when the TFT 9 is in its ON state. Therefore, liquid crystal molecules are ionized (i.e., anionization) and the ionized liquid crystal molecules extensively disperse throughout the liquid crystal layer 18 so that the ion concentration of the liquid crystal layer 18 becomes uniform as a whole (i.e., variations in ion concentration are eliminated). This is thought to be the reason why display unevenness does not occur in the present embodiment.

Please amend the third full paragraph on page 23 as follows:

In contrast with the conventional fabrication method, the present embodiment does not require an additional process. More specifically, in the step of exposing the connector terminal, which is used for connection between the signal lines and the external driving circuit, from the overcoat film 12, the apertures 13 may be formed at the same time. The liquid crystal screen display of the present embodiment capable of restraining occurrence of display unevenness can be

attained only by changing the configuration of the mask used in the step of processing the overcoat film 12 in the conventional fabrication process.

Please amend the first full paragraph on page 25 as follows:

The third electrode 17 is in contact with the alignment layer 16 and its potential is set equal to the OFF potential (i.e., the potential of the gate signal lines 4 when the TFT 9 connected to it is in the OFF state). For instance, the potential of the pixel electrodes 6 is reversed at $\pm 5V$ with respect to the common electrodes 7 when the panel is in service and the common electrodes 7 are grounded (0V). While the panel is driven, the third electrode 17 is maintained at -10V and minus ions are constantly generated.

Please amend the second full paragraph on page 29 as follows:

Figure 8 shows an array substrate for use in another liquid crystal screen display according to the fourth embodiment. The array substrate 2 is similar to that of the third embodiment, including the ion generation apertures 13a in the regions where the gate signal lines 4 are disposed and the ion retrieval aperture 13b positioned immediately above the common electrode line 8. As shown in Figures 9a, 9b and 9c, the opposed substrate 3 used for the panel 1 has the third electrode 17 having a potential equal to the potential of the common electrodes. The third electrode 17 is positioned in contact with the liquid crystal layer 18 to retrieve ions.

Please amend the third full paragraph on page 30 as follows:

A common electrode 7 is comprised of a first common electrode 7a and a second common electrode 7b, the first common electrode 7a being integrally formed with the gate signal lines 4, the common electrode line 8 and others while the second common electrode 7b is located in a layer upper than those elements with the insulating layer 11 between. The first common electrode 7a and the second common electrode 7b are electrically connected to each other through a contact hole 22 defined in the insulating layer ~~[[12*]]~~ 11.

Please amend the paragraph bridging pages 31 and 32 as follows:

The first common electrode 7a is formed through a process similar to the processes of the foregoing embodiments. The contact hole 22 is formed at the same time that the insulating layer 11 at the end of the substrate 10 is removed to expose the terminal used for connecting the gate signal lines 4 to the external circuit. The second common electrode ~~[[7a*]]~~ 7b is formed simultaneously with the formation of the source signal lines 5, the pixel electrodes 6 and others. Accordingly, the liquid crystal screen display of the fifth embodiment can be accomplished without adding a new step to the fabrication process of the conventional liquid crystal screen display.

AMENDMENT TO THE DRAWINGS

Please amend Fig.'s 1, 17 and 18 as indicated in the attached Replacement Sheets.

With respect to Figure 1:

The "4:SOURCE SIGNAL LINE" will now read 5:SOURCE SIGNAL LINE.

The "5:GATE SIGNAL LINE" will now read 4:GATE SIGNAL LINE.

Figures 17 and 18 have been labeled "Prior Art"

AMENDMENTS TO THE CLAIMS

1-24. (Cancelled)

25. (Currently Amended) A liquid crystal screen display comprising:

a first insulating substrate;

a second insulating substrate facing the first insulating substrate;

a liquid crystal layer formed between the first and second insulating substrates; and

alignment layers formed between the first insulating substrate and the liquid crystal layer and between the second insulating substrate and the liquid crystal layer, respectively, for aligning the liquid crystal layer; and

a first conductive member which is formed between at least either one of the first and second insulating substrates and its corresponding alignment layer, being in partial contact with the alignment layer and to which a negative voltage is applied, wherein

an electrolyte is added to the liquid crystal layer.

26. (Cancelled)

27. (Currently Amended) The liquid crystal screen display according to claim 25 [[26]], wherein the electrolyte is a compound given by the chemical formula (t-Bu)₄NX, where X of the chemical formula is halogen.

28. (Currently Amended) The liquid crystal screen display according to claim 25 [[27]], wherein the electrolyte is a compound given by the chemical formula (t-Bu)₄NX, where X of the chemical formula is COOR (in which R is hydrogen, a hydro carbon group or alkali metal).

REMARKS

As a preliminary matter, it is noted that the Examiner has not provided an initialed copy of the Information Disclosure Statement filed on March 30, 2004. A copy of the IDS and stamped-post card showing receipt by the PTO is attached hereto for the Examiner's reference. In addition, a second IDS dated November 1, 2004 was filed after the mailing date of the outstanding Office Action. It is respectfully requested that the Examiner provide Applicants an initialed copy of both IDS's indicating that each of the prior art references cited therein have been considered and made of record.

Claims 25-27 stand rejected under 35 U.S.C. § 102 as being anticipated by Tani et al. '925 ("Tani"), and claims 25, 26 and 28 stand rejected under 35 U.S.C. § 102 as being anticipated by Arai et al. '168 ("Arai"). These rejections are respectfully traversed for the following reasons.

In order to expedite prosecution, claim 25 has been amended to incorporate additional structural elements to define a novel *combination* of features. Both Tani and Arai appear to provide only a vague description of the LCD structure and appear to be silent as to the complete structural details of the LCD's. Indeed, neither Tani nor Arai appear to disclose or suggest alignment layers formed between the respective insulating substrates and the liquid crystal layer, and a first conductive member which is formed between at least either one of the first and second insulating substrates and its corresponding alignment layer and being in partial contact with the alignment layer and to which a negative voltage is applied; let alone in the particular combination now recited in claim 25.

As described throughout Applicants' specification, the present invention can be capable of intentionally generating ions by providing a first conductive member to obviate non-uniformity of

ion concentration in a liquid crystal layer, thereby inhibiting display unevenness; and with the addition of an electrolyte to the liquid crystal layer, the present invention can enable inhibiting non-uniformity of the ions generated in the liquid crystal layer. Only Applicants have recognized and considered the capability for such combined effects, and conceived of the novel *combination* of structural/functional elements to enable realizing such effects.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Tani and Arai do not anticipate claim 25, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 25 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102 be withdrawn.

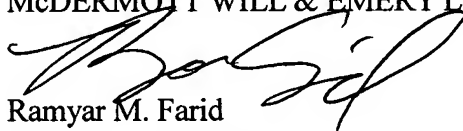
CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicant submits that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicant's attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Ramyar M. Farid
Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 RMF:cac
Facsimile: 202.756.8087
Date: December 7, 2004

**Please recognize our Customer No. 20277
as our correspondence address.**